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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,441	07/10/2001	John G. Leddy	24717-705	8908
21971	7590	10/05/2004	EXAMINER	
WILSON SONSINI GOODRICH & ROSATI 650 PAGE MILL ROAD PALO ALTO, CA 943041050			VU, THONG H	
			ART UNIT	PAPER NUMBER
			2142	

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/903,441

Applicant(s)

LEDDY ET AL.

Examiner

Thong H Vu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2001.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 27-50 is/are allowed.
6) ☒ Claim(s) 1-26 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 10 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/01-4/04.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 1-50 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-26 are rejected under 35 U.S.C. § 103 as being unpatentable over Phaltankar [6,714,549 B1] in view of Rekhter et al [Rekhter 6,526,056 B1].
3. As per claim 1, Phaltankar discloses in an internetwork comprising a plurality of coupled autonomous systems [Phaltankar, ATM and Internet, abstract] wherein the plurality of coupled autonomous systems communicate routing information via a Border Gateway Protocol (BGP) [Phaltankar, router with BGP, col 8 line 39-col 9 line 5] and the internetwork includes a routing overlay network to communicate routing parameters between the plurality of coupled autonomous systems [Phaltankar, configuration parameters, col 14 line 66-col 15 line 15], a BGP update message comprising:

a Network Layer Reachability Information (NLRI) field, the NLRI field including a first network prefix; and a first network mask [Phaltankar, the first parameter is IP prefix, specifically, the IP number and mask to be used on the user connection, col 14 line 66-col 15 line 15];

However Phaltankar does not detail an origin attribute, the origin attribute including an identifier for the routing overlay network and a first community attribute, the

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first community attribute including an identifier for a private autonomous system (i.e.: VLAN) from the plurality of autonomous systems.

A skilled artisan would have motivation to improve the routing process for a private network and found Rekhter teaching. Rekhter discloses a private network using tag-implemented egress channel selection wherein an update message carries the origin and the AS_PATH attributes which identifies a autonomous system (AS) [Rekhter, Update message carries the origin and AS_PATH attributes, col 59 lines 55-67; AS_path attribute's value includes a first field that identifies it a sequence of Autonomous Systems, col 18 lines 16-21]

An Official Notice is taken that an Internet router using BGP including routes or prefixes and CIDR (Classless Inter-Domain Routing), thresholding clients clusters, value pair with argument and type were well-known in the art [see Krishnamurthy et al, Draves et al, Alaettinoglu et al references]

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the update message carries the origin and the AS_PATH attributes which identifies a autonomous system as taught by Rekhter into the Phaltankar's apparatus in order to utilize the BGP. Doing so would provide a high resiliency and directly communication over Internet.

4. As per claim 2, Phaltankar-Rekhter disclose the BGP update message is transmitted from the routing overlay network to one or more points of presence in the a plurality of coupled autonomous systems as inherent feature of BGP update message.

5. As per claim 3, Phaltankar-Rekhter disclose the first network prefix and the first network mask comprise a first classless address, the first classless address identifying a first internetwork destination [Phaltankar, the first parameter is IP prefix, specifically, the IP number and mask to be used on the user connection, col 14 line 66-col 15 line 15].

6. As per claim 4, Phaltankar-Rekhter disclose the first classless address (i.e.: CIDR) is a member of an equivalence class of addresses, the equivalence class including a plurality of classless network addresses, wherein the plurality of classless network addresses are in geographical proximity [Phaltankar, equivalent components, col 11 lines 12-30; equivalent services, col 11 lines 32-55].

7. As per claim 5, Phaltankar-Rekhter disclose the first classless address is a member of an equivalence class of addresses, the equivalence class including a plurality of classless network addresses, wherein the plurality of classless network addresses have jitter statistics within a pre-defined threshold [Phaltankar, equivalent components, col 11 lines 12-30; equivalent services, col 11 lines 32-55].

8. As per claim 6, Phaltankar-Rekhter disclose the first classless address is a member of an equivalence class of addresses, the equivalence class including a plurality of classless network addresses, wherein the plurality of classless network

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addresses have packet loss statistics within a pre-defined threshold [Phaltankar, equivalent components, col 11 lines 12-30; equivalent services, col 11 lines 32-55].

9. As per claim 7, Phaltankar-Rekhter disclose the first classless address is a member of an equivalence class of addresses, the equivalence class including a plurality of classless network addresses, wherein the plurality of classless network addresses have packet delay statistics within a predefined threshold [Phaltankar, equivalent components, col 11 lines 12-30; equivalent services, col 11 lines 32-55].

10. As per claim 8, Phaltankar-Rekhter disclose the first classless address is a member of an equivalence class of addresses, the equivalence class including a plurality of classless network addresses, wherein the plurality of classless network addresses have similar jitter, delay, and loss statistics within a pre-determined threshold [Phaltankar, equivalent components, col 11 lines 12-30; equivalent services, col 11 lines 32-55].

11. As per claim 9, Phaltankar-Rekhter disclose second classless address, the second classless address including: a second network prefix; and a second network mask [Phaltankar, the first parameter is IP prefix, specifically, the IP number and mask to be used on the user connection, col 14 line 66-col 15 line 15].

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12. As per claim 10, Phaltankar-Rekhter disclose the second classless address identifies a second internetwork destination as inherent feature of BGP [see Krishnamurthy reference].
13. As per claim 11, Phaltankar-Rekhter disclose a second community attribute, the second community attribute including the identifier for the private autonomous system [Phaltankar, VLAN ID, col 23 lines 27-40]; and a scalar identifier for the equivalence class [Phaltankar, equivalent components, col 11 lines 12-30; equivalent services, col 11 lines 32-55].
14. As per claim 12, Phaltankar-Rekhter disclose the identifier for the routing overlay network is 65534 as a design choice.
15. As per claim 13, Phaltankar-Rekhter disclose the identifier for the private autonomous system has the value 65001 as a design choice.
16. As per claim 14, In an internetwork comprising a plurality of coupled autonomous systems, wherein the plurality of coupled autonomous systems communicate routing information via a Border Gateway Protocol (BGP), and the internetwork includes a routing overlay network to communicate routing parameters between the plurality of coupled autonomous systems, a method of identifying a classless network address as a member of an equivalence class, the equivalence class comprising a plurality of

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classless addresses, wherein a route for the classless address has already been advertised to the plurality of coupled autonomous systems, the method comprising:

generating a BGP update message [Phaltankar, BGP, col 8 line 39-col 9 line 5], the BGP update message including:

a destination network for the classless address; a network mask for the classless address [Phaltankar, the first parameter is IP prefix, specifically, the IP number and mask to be used on the user connection, col 14 line 66-col 15 line 15];

an Autonomous System (AS) Path attribute, the AS Path attribute having a value of the route for the network destination [Rekhter, Update message carries the origin and AS_PATH attributes, col 59 lines 55-67; AS_path attribute's value includes a first field that identifies it a sequence of Autonomous Systems, col 18 lines 16-21]; and

a first community attribute, the community attribute including:

an identifier for a private autonomous system from the plurality of coupled autonomous systems [Rekhter, identifying channel to access the VPN or autonomous system, col 5 lines 1-12; VLAN ID, col 23 lines 27-40]; and

forwarding the BGP update message from the routing overlay network to the plurality of coupled autonomous systems [Rekhter, forwarding table entries or BGP updated message to the VPN or autonomous system, col 5 lines 1-12].

17. As per claim 15, Phaltankar-Rekhter disclose the first community attribute is a scalar with a value 65001 as a design choice.

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18. As per claim 16 Phaltankar-Rekhter disclose the first community attribute further includes a value 0 as a design choice.

19. As per claim 17 Phaltankar-Rekhter disclose the plurality of classless addresses in the equivalence class have similar network performance characteristics [Phaltankar, equivalent components, col 11 lines 12-30; equivalent services, col 11 lines 32-55].

20. As per claim 18 Phaltankar-Rekhter disclose the plurality of classless addresses are in geographic proximity as inherent feature of BGP with CIDR [see Krishnamurthy reference].

21. As per claim 19 Phaltankar-Rekhter disclose the similar network performance characteristics include one or more of delay statistics, jitter statistics, and loss statistics [Phaltankar, performance, col 13 lines 10-33].

22. As per claim 20 Phaltankar-Rekhter disclose the BGP update message further includes a second community attribute, the second community attribute including the scalar with the value 65001 as a design choice; and a unique scalar identifier for the equivalence class [Phaltankar, equivalent components, col 11 lines 12-30; equivalent services, col 11 lines 32-55].

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23. As per claim 21, Phaltankar-Rekhter disclose In an internetwork comprising a plurality of coupled autonomous systems, wherein the plurality of coupled autonomous systems communicate routing information via a Border Gateway Protocol (BGP) and the internetwork includes a routing overlay network to communicate routing parameters between the plurality of coupled autonomous systems, a method of communicating network performance parameters for a route in the internetwork, the method comprising:

advertising a BGP update message from a point of presence in the internetwork to the routing overlay network; and prior to advertising the BGP update message, generating the BGP update message [Rekhter, BGP update message, col 13 lines 5-18], the BGP update message including:

a classless address for a network destination of the route, the classless address further including:

an identifier for the network destination [Rekhter, the destination field, col 10 lines 1-10]; and a mask for the network destination [Phaltankar, the IP number and mask to be used on the user connection, col 14 line 66-col 15 line 15];

an autonomous system path attribute, indicating a chain of autonomous systems from the plurality of coupled autonomous systems traversed by the route [Rekhter, Update message carries the origin and AS_PATH attributes, col 59 lines 55-67; AS_path attribute's value includes a first field that identifies it a sequence of Autonomous Systems, col 18 lines 16-21];

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a community string including a first hop autonomous system indicating an ISP coupled to the point of presence [Rekhter, first element is a next-hop IP address, col 10 lines 24-30]; and

one or more value pairs including a type, indicating a type of performance measurements of the route; and an argument, indicating a value of the performance measurements of the route as inherent feature of BGP AS-path attribute [see Alaettinoglu et al reference, pages 35-36].

24. As per claim 22, Phaltankar-Rekhter disclose the one or more value pairs includes a value pair indicating jitter measurements for the route, such that the type identifies the jitter measurements as jitter for the route, and the argument indicates the value for the jitter as inherent feature of BGP update message.

25. As per claim 23, Phaltankar-Rekhter disclose the one or more value pairs includes a value pair indicating packet drop measurement for the route, such that the type identifies the measurements as packet drop for the route, and the argument indicates the value for the packet drop as inherent feature of BGP update message.

26. As per claim 24, Phaltankar-Rekhter disclose the one or more value pairs includes a value pair indicating delay measurement for the route, such that the type identifies the measurements as delay for the route, and the argument indicates the value for the delay as delay as inherent feature of BGP update message.

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27. As per claim 25, Phaltankar-Rekhter disclose the autonomous path attribute includes an identifier for the routing overlay network [Phaltankar, VLAN ID, col 23 lines 27-40].

28. As per claim 26, Phaltankar-Rekhter disclose the identifier for the routing overlay network is 65534 as a design choice.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

29. (Claim 27). None of the prior art of record teaching an inter-network comprising a plurality of coupled autonomous systems, wherein the plurality of coupled autonomous systems (ASs) communicate routing information via a Border Gateway Protocol (BGP) and the internetwork includes a routing overlay network to communicate routing parameters between the plurality of coupled autonomous systems, a method of exchanging routing information between a source network and a destination network coupled to the internetwork, inserting a BGP community into a BGP feed, the BGP community including a cooperative private autonomous system field, the cooperative private autonomous system field being between 65001 and 65100.

30. Claims 28-50 depend on claim 27 and are considered allowable on the same basis as the independent claim as well as for the further limitation set forth.

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31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Thong Vu, whose telephone number is (703)-305-4643.

The examiner can normally be reached on Monday-Thursday from 8:00AM- 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, *Jack Harvey*, can be reached at (703) 305-9705.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-9700.

Any response to this action should be mailed to: Commissioner of Patent and Trademarks, Washington, D.C. 20231 or faxed to :

After Final (703) 746-7238

Official: (703) 746-7239

Non-Official (703) 746-7240

Hand-delivered responses should be brought to Crystal Park 11,2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Thong Vu
Patent Examiner
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